

**REMARKS**

Appreciation is hereby expressed to Examiner Thexton for so courteously and professionally conducting the interview herein on January 21, 2004. In accordance with the discussions at said interview, claim 1 has been amended and claims 34-37 cancelled. The present amendment is deemed not to introduce new matter. Claims 1, 7-9 and 32-33 remain now in the application.

Reconsideration is respectfully requested of the objection/rejection of amended claims 1, 7 and 9, as being directed to a non-elected invention.

As discussed with Examiner Thexton at said interview on January 21, 2004, it was believed that the previously amended claim 1 was readable on the elected invention Group I, i.e., a flame retardant material. However, it is understood from the discussions with the Examiner that the previous amendments to claims 1, 7 and 9 are interpreted by the Examiner as including polymers having mixed therein specified flame retardant additives, and polymers with surface properties of imbedded flame retardant additives, i.e., non-elected Groups II and III. Thus, it was agreed that claim 1 shall be amended herein to conform with the Examiner's interpretation of the elected invention Group I, i.e., flame retardant formulations.

It is respectfully submitted that, regardless of the amendments made herein, the flame retardant material of the present invention continues to patentably distinguish from the cited Matsumoto, et al. reference. In particular, amended claim 1 herein still calls for:

- (i) a **metal-free** group expressed as  $N_xO_y$  (where, x and y are positive integers) comprising

a compound selected from the group consisting of **non-metallic** nitric acid compound, **non-metallic** nitrous acid compound and **non-metallic** hyponitrous acid compound; and

(ii) a group capable of generating water upon heating.

Patentable unobviousness does not depend upon a showing of advantages or improvements, but upon obviousness. *Ex parte Parthasarathy et al.* 174 USPQ 63 (POBA 1971). However, proof of an unexpected improvement can rebut a prima facie case of obviousness. *In re Murch* 464 F2d 1051, 175 USPQ 89 (CCPA 1972); *In re Costello* 480 F2d 894, 178 USPQ 290 (CCPA 1973).

As described in the Specification on page 4, last line, to page 5, line 16, and pages 31 to 33, Tables 2 and 3, the present inventors unexpectedly discovered that inclusion of metals in the nitric acid compound, nitrous acid compound or the hyponitrous compound tend to color the “target substance”, i.e., the material or substrate comprising or upon which the flame retardant material of the present invention is applied. In particular, it was theorized that “[c]oloring is probably ascribable to metal ion” (Specification, page 5, lines 3-4). Thus, in instances where coloring of the target substance is not desired, it is important that the “group expressed as  $N_xO_y$ ” is “metal-free”.

This theory was supported by the test data shown in Tables 2 and 3. For example, when sample 1b, as shown in Table 2, containing zinc nitrate in place of ammonium nitrate was tested, sufficient flame retardancy was found, but “resulted in slight coloring of the resin”. Further, sample 2b, as shown in Table 3, produced the same results. In contrast, samples 1 and 5-7, which contain no metal in the group expressed as  $N_xO_y$  (referred to as “Nitric acid compound (x)”),

were found to have excellent flame retardancy, while causing no coloring of the resin (see Specification, page 34, Table 4 and lines 3-4).

The group capable of generating water upon heating, as claimed herein in amended claim 1, is a hydroxyl-containing compound. This compound is comprised of a metal hydroxide, such as magnesium hydroxide, as disclosed in the Matsumoto, et al. However, Matsumoto, et al., fail to teach or suggest a flame retardant material having a **metal-free** group expressed as  $N_xO_y$  (where, x and y are positive integers) comprising a compound selected from the group consisting of **non-metallic** nitric acid compound, **non-metallic** nitrous acid compound and **non-metallic** hyponitrous acid compound, as claimed herein. Rather, this element comes only from the present invention, and constitutes an important element or aspect thereof.

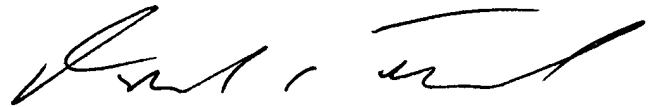
In view of the above, it is respectfully submitted that the disclosure of an alkali metal salt of nitrite, nitrate, sulfite, sulfate, or halide disclosed in Matsumoto, et al. should NOT be equated to the **metal-free** group expressed as  $N_xO_y$ . Further, in view of the legal authorities cited above, it is believed that the unexpectedly superior flame-retardant results obtained with the present invention provide ample evidence of unobviousness. As such, it is believed that the Examiner would now be justified in no longer maintaining the rejection, as there is no prior teaching or suggestion of metal-free group expressed as  $N_xO_y$ , as claimed in the present invention. Withdrawal of the rejection is accordingly respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is now in condition for allowance, and early action and allowance thereof is accordingly respectfully requested. In the event there is any reason why the application cannot be allowed at the present

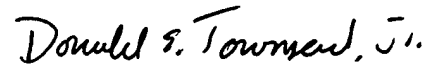
time, it is respectfully requested that the Examiner contact the undersigned at the number listed below to resolve any problems.

Respectfully submitted,

TOWNSEND & BANTA

A handwritten signature in black ink, appearing to read 'Donald E. Townsend', with a stylized flourish at the end.

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Date: February 3, 2004

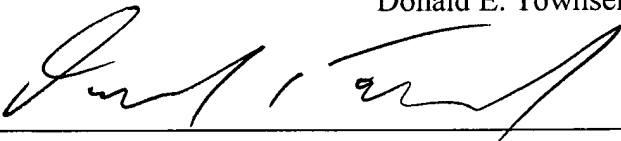
**CERTIFICATE OF MAILING**

I hereby certify that this correspondence, consisting of an Amendment and Petition for 1 Month Extension of Time in U.S. patent application serial No. 10/058,327, is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

On February 3, 2004.

Donald E. Townsend



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